

NEDED-R(21 June 68) 2d Ind

SUBJECT: Detailed Project Report for Small Navigation Project,
Red Brook Harbor, Bourne, Massachusetts

DA, New England Div., CE, Waltham, Mass. 02154 23 October 1968

TO: Chief of Engineers, ATTN: ENGCW-PD

1. In accordance with ER 1165-2-14, paragraph 14(5), there are inclosed twelve (12) sets each of the 1st and 2d Indorsements, revised pages 10, 12, and 22 of the report and comments of the Federal Water Pollution Control Administration, all for insertion in the 12 copies of the report retained in your office. Comments in paragraphs 3 and 4 of the 1st Indorsement have been reflected in the revised text.

2. The Governor of Massachusetts has been informed of the proposed project and his comments endorsing the project are inclosed for inserting in Appendix C of the report.

3. Members of Congress and the Governor of the Commonwealth of Massachusetts were notified of formal adoption of the project by letters dated 21 October 1968. The Massachusetts Department of Public Works and the Selectmen of Bourne were notified of project approval on 23 October 1968.

7 Incl
as (12 cys each)

FRANK P. BANE
Colonel, Corps of Engineers
Division Engineer

ENGW-PD (25 June 68) 1st Ind

SUBJECT: Detailed Project Report for Small Navigation Project - Red Brook Harbor, Bourne, Massachusetts

DA, CofEngrs, Washington, D. C. 20315

19 August 1968

TO: Division Engineer, New England

1. The draft report is considered satisfactory subject to the following comments.
2. The estimate of first costs is based on use of a bucket dredge with scow disposal in an approved off shore disposal ground. An explanation should be included in the report stating why use of a hydraulic dredge with disposal in diked disposal areas was eliminated.
3. In view of the existing capacity of Red Brook Harbor for 675 boats in the anchorage and 68 in berths and the present size of the fleet, 338 boats, the statement in paragraph 39 that benefits to the existing fleet would result from alleviation of overcrowded mooring conditions is not clear. The report should include an estimate of the number of moorings required to accommodate the 4,000 existing transient boats. If the present harbor capacity exceeds the present demand, benefits from new boats comprising growth of the home based fleet and increase in the number of transient boats will not result until the existing harbor capacity is exceeded.
4. Paragraph 52 states that FWPCA was consulted. The results of this consultation should be included in the report.
5. The item of local cooperation, paragraph 13e of EM 1120-2-113, pertaining to reservation of spaces adequate for accommodation of transient boat traffic should be used in view of the large number of transient boats using the harbor.
6. Provided the Division Engineer satisfies himself concerning these comments, the Governor of Massachusetts should be informed of the project proposal and official state endorsement obtained. After receipt of favorable State and agency comments fully endorsing the proposal, the Red Brook Harbor project may be considered formally approved under Section 107 of the 1960 River and Harbor Act, as amended. Authority is then granted to issue simultaneous notification to the concerned members of Congress and the State Governor informing them of the formal project approval and adoption under Section 107. The notification should describe the project and required local participation. For record purposes, the date of notification is considered to be the date of the final project approval and adoption.

ENGW-PD (25 June 68) 1st Ind

19 August 1968

SUBJECT: Detailed Project Report for Small Navigation Project - Red Brook Harbor, Bourne, Massachusetts

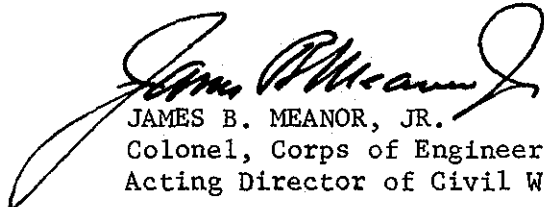
7. The Red Brook Harbor project will take its place on the backlog of approved Section 107 projects in accordance with paragraph 17, ER 1165-2-14. Authority is granted to commence project preconstruction work, including preparation of plans and specifications. The following work allowance is established to cover preconstruction work under Section 107.

<u>Location</u>	<u>Code 902-</u>	<u>Amount</u>
Red Brook Harbor, Bourne, Mass.	216	\$12,000

8. Allotment of \$12,000 under appropriation 96X3122 Construction, General will be sent by separate communication.

FOR THE CHIEF OF ENGINEERS:

wd all incl


JAMES B. MEANOR, JR.
Colonel, Corps of Engineers
Acting Director of Civil Works

33. No reports of damages to recreational craft moored in Red Brook Harbor caused by waves entering the harbor have been made known. The harbor is well sheltered from open waters of Buzzards Bay by Bassett Island and the surrounding mainland which offer considerable protection against storm damages other than hurricanes. In view of the lack of economic justification, no consideration was given to construction of a stone breakwater at the entrance at this time.

PLAN OF IMPROVEMENT

34. Selection of a plan of improvement was made on the basis of providing the maximum open anchorage area available in Hen Cove and Barlows Landing where the largest concentration of summer population and the local business center of Pocasset are located. These two coves are the only areas which do not have sufficient existing depths in Red Brook Harbor to meet the needs of present and prospective boating needs. These coves are adequately sheltered by surrounding land to accommodate a total of 220 small craft in open anchorage. Therefore, a plan of improvement has been developed that would best meet the needs of local boating interests by dredging a 10-acre anchorage at Barlows Landing and a 100-foot wide entrance channel leading into a 14.5-acre anchorage at Hen Cove, all to a depth of six feet below mean low water. Provision of an anchorage area at Barlows Landing of more than 10 acres would not be incrementally justified because the cost of dredging would exceed the benefit to be derived by any boats that would use the added area.

SHORELINE CHANGES

35. The proposed dredging at Barlows Landing and Hen Cove would cause no appreciable change in existing conditions and tidal currents. Therefore, no effect on the shoreline will result.

AIDS TO NAVIGATION

36. The United States Coast Guard has been consulted in regard to the need for establishing aids to navigation in the area considered for improvement. The U. S. Coast Guard report is included in

Appendix B. The first cost and annual maintenance costs for the necessary aids are \$1,050 and \$145, respectively.

ESTIMATE OF FIRST COSTS

37. The estimated first cost of construction of the selected plan of improvement is based on soundings and random probings taken during the hydrographic survey made in November and December 1966. Construction would involve the removal of mud, sand and gravel by bucket dredging with scow disposal on an approved offshore dumping ground in lieu of hydraulic dredging with spoil disposal on diked upland areas. Onshore disposal was not considered feasible since all of the shore areas within an economical hydraulic disposal distance are occupied by summer homes or utilized as a fish and wildlife resource. In addition, the material to be dredged is of such a composition as to be unacceptable as beach fill for nearby beach areas. Local interests would be responsible for providing berthing areas at the existing public landings, with depths commensurate to the Federal project. Aids to navigation would be provided by the U. S. Coast Guard. Dredging quantities are in terms of in-place measurement and include an allowance of one foot overdepth dredging and side slopes of one vertical to three horizontal. The estimated first costs are:

PROJECT COST ESTIMATE

Project Features - (6-foot channel and anchorages)

<u>Cost Acct. No.</u>	<u>Item</u>	<u>Estimated Cost (May 1968 Prices)</u>
09	Dredging (ordinary material)	
	70,000 c. y. @\$2.50	\$ 175,000
	Contingencies	26,000
	Total	\$ 201,000
	Engineering & Design	12,000 ⁽¹⁾
	Supervision & Administration	17,000
	Total Construction Cost	\$ 230,000
	Aids to Navigation (Coast Guard)	1,050
	Public Landings (piers and berths)	10,000 ⁽²⁾
	Total Project Cost	\$ 241,050

(1) Excludes \$22,500 project study costs.

(2) Self-liquidating.

ESTIMATE OF ANNUAL CHARGES

38. Annual charges for the improvement have been estimated on the basis of a 50-year project life with Federal and non-Federal interest rates of 3-1/4 percent. Average annual maintenance charges are based on past experience with other harbors of similar size and condition. It is estimated that maintenance work will be needed every 10 years to restore project anchorage and channel depths. The maintenance dredging will involve the removal of 30,000 cubic yards each time. The total annual charges for the improvement are shown below.

Federal Investment

Corps of Engineers	\$115,000
Coast Guard	1,050
Total	<u>\$116,050</u>

Non-Federal Investment

Cash contribution	\$115,000
Public landings (berthing, parking lots, fuel and water supplies)	10,000
	<u>\$125,000</u>
Total Investment	\$241,050

Federal Annual Charges

Interest and Amortization (.04073 x 115,000) =	\$ 4,683
Maintenance dredging 3,000 c. y. x \$3.00	9,000
Aids to navigation	145
Total Federal	<u>\$ 13,828</u>

Non-Federal Annual Charges

Interest and Amortization (.04073 x 115,000) =	\$ 4,684
Total Annual Charges	\$ 18,512

ESTIMATE OF BENEFITS

39. Improvement of Barlows Landing and Hen Cove by dredging adequate anchorage areas would allow for expansion of the locally based recreational fleet in these coves. Because of the large number of transient craft in the Bourne area during the summer boating season Red Brook Harbor on occasion becomes overcrowded under existing conditions. Many of the transient craft would move into the above mentioned coves upon improvement as the public landings are located closer to the summer resort business areas.

40. Recreational benefits have been computed on the basis of the amount of net annual return to the owners, if the boats were for hire. The net annual return is expressed as a percentage of the boats' average depreciated value. An estimate was made of the present annual return by taking into consideration such factors as shallow depths, lack of available berthing and mooring facilities, and other deficient navigational conditions. Then an estimate was made of the percent of optimum use which could be received under the proposed improvements. The difference organ between the two conditions was considered the benefit. Twenty of the 338 boats in Red Brook Harbor and vicinity, which would benefit from the improvement, are located in the coves at Barlows Landing and Hen Cove. Benefits to this local fleet have been estimated to amount to \$850 after a proper reduction for time on cruise (See Table I, Page 15.)

41. The recreational boating industry is increasing steadily throughout the country at an average rate of about 6 percent a year. Expansion of the fleet at Red Brook Harbor, however, has not kept pace with this national rate due to inadequate anchorage areas, public access and marina facilities. On the basis of a 200 percent increase in the existing fleet over the next 50 years, it is estimated that 676 new boats will be added to the existing fleet of 338 boats. The total number of locally based boats using the waterways at the end of 50 years, exclusive of rowboats, is estimated to be 1,050 craft, including equivalent transients.

42. Studies have been made to determine the capacity of anchorages with free swinging overlapping circle moorings. It was concluded that with a tidal range of 4 feet, a depth of 6 feet below mean low water, and an average boat length of 30 feet, an ultimate saturation of 9 boats per acre would result. On this

in benefits to recreational boating that would yield a ratio of annual benefits to annual costs of 2.6 to 1. Local interests indicate that the improvement will meet their needs, and that the requirements of local cooperation will be met. All agencies known to be interested have been consulted and those replying have expressed no objection to the improvement. The proposed project meets the criteria for authorization under Section 107 of the River and Harbor Act of 1960, as amended in 1965.

RECOMMENDATION

55. The Division Engineer recommends Federal improvement of Red Brook Harbor, Bourne, Massachusetts, be authorized under provisions of Section 107 of the River and Harbor Act of 1960, as amended in 1965, to provide for: An entrance channel, 6 feet deep, 100 feet wide, leading from deep water in Pocasset Harbor into a 14.5-acre, 6-foot deep anchorage in Hen Cove and into a 10-acre, 6-foot deep anchorage at Barlows Landing. Since the project will be exclusively for the benefit of recreational boating, local interests should be required to contribute toward the project costs. The improvements are recommended subject to the conditions that local interests:

- a. Provide a cash contribution of 50 percent of the first cost of Federal construction, presently estimated at \$115,000.
- b. Provide, maintain and operate, without cost to the United States, two public landings, one in each cove proposed for improvement, with berthing depths alongside commensurate to the Federal channel depth, parking areas and other public use facilities open to all on equal terms.
- c. Hold and save the United States free from damages which may result from construction and maintenance of the project.
- d. Provide, without cost to the United States, all necessary lands, easements, and rights-of-way needed for the construction and maintenance of the project and for aids to navigation upon request of the Chief of Engineers, including suitable areas, if determined by the Chief of Engineers prior to construction to be required in the general public interest, for subsequent disposal of spoil, and also necessary retaining dikes, bulkheads and embankments thereof or the costs of such retaining works.

e. Establish a properly constituted and competent non-profit public body empowered to cooperate financially and to provide and operate essential local facilities open to all on equal terms.

f. Establish regulations prohibiting discharge of untreated sewage, garbage, and other pollutants in the waters of the harbor by users thereof, which regulations shall be in accordance with applicable laws or regulations of Federal, State and local authorities responsible for pollution prevention and control.

F. R. DAY
Colonel, Corps of Engineers
Acting Division Engineer

4 Incls

1. Maps - 4 Plates
2. Appendix A - Comments
of Federal Agencies
3. Appendix B - U.S. Coast
Guard Report
4. Appendix C - Letters by
Local Interests



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
NORTHEAST REGION
JOHN F. KENNEDY FEDERAL BUILDING
ROOM 2003 J & K
BOSTON, MASSACHUSETTS 02203

September 16, 1968

Mr. John Wm. Leslie
Chief, Engineering Division
New England Division, Corps of Engineers
U.S. Department of the Army
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Mr. Leslie:

The opportunity to comment on the proposed navigation improvement project at Red Brook Harbor, Bourne, Massachusetts is appreciated.

We are pleased to note that in the interest of pollution prevention and control local interests will be required to establish regulations prohibiting the discharge of untreated sewage, garbage and other pollutants in the waters of the harbor.

The project involves the dredging and disposal of approximately 70,000 cubic yards of material. It is recommended that prior to construction, the method of disposal be coordinated with the Massachusetts Division of Water Pollution Control; and that prospective contractors be informed that their operations must be compatible with the existing state standards of water quality.

Sincerely yours,

Mark Abelson
Regional Coordinator

cc: Mass. Div. of Water Pollution
Control
James Lambie, FWPCA, Needham,
Mass.



JOHN A. VOLPE
GOVERNOR

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE, BOSTON

October 10, 1968

Colonel Frank P. Bane
U. S. Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Colonel Bane:

This is in reply to your letter of September 26 concerning the Federal navigation improvement at Red Brook Harbor in Bourne, Massachusetts.

Red Brook Harbor could well be developed into a small boat recreational facility. Our Division of Waterways engineers have attended several meetings and hearings in connection with the Corps' study of this area. On October 7, 1965, the Bourne Harbor Committee was advised to initiate legislation which would enable the Division of Waterways to participate in this project. To the best of my knowledge this was never done; therefore, the Commonwealth is not in a position to cooperatively participate in this project at the present time.

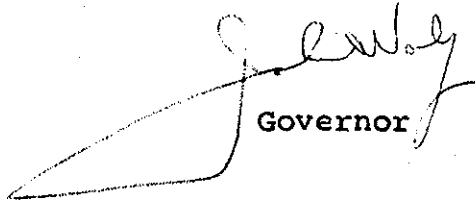
Since 1954 approximately one-quarter of a million dollars in State funds has been spent improving Red Brook Harbor. I have no reason to believe that the General Court of Massachusetts would not authorize participation in a cooperative

Colonel Bane

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improvement here and eventually appropriate the required matching funds, but you must realize that I am not in a position to forecast legislative deliberations.

Sincerely,

A handwritten signature in dark ink, appearing to be "J. Leary", written over the printed name "Governor". The signature is stylized with a long horizontal stroke extending to the left.

Governor